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FOREST INSECT INVESTIGATIONS

MOUNTAIN PINE BEETLE INFESTATION IN THE TWELVE MILE AND BIG CREEK DRAINAGES CABINET NATIONAL FOREST

by
James C. Evenden
Entomologist

Copies to:
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Forest Insect Laboratory
Coeur d'Alene, Idaho
November 8, 1935.

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MISSOULA
FOREST INSECT
LABORATORY

MOUNTAIN PINE BEETLE INFESTATION IN THE TWELVE MILE AND BIG CREEK DRAINAGES CABINET NATIONAL FOREST

Forest roads were constructed in the Twelve Mile and Big Creek drainages of the Cabinet National Forest during the seasons of 1933 and 1934. During the early part of June, 1935, Forest officers discovered that the white pine slash from these right-of-ways was heavily infested with broods of the mountain pine beetle resulting from 1934 attacks. Control measures were instituted on June 20th, with an assignment of some 35 CCC laborers and 2 foremen. It is unfortunate that this condition was not known earlier in the season, as by the time this project was instituted a large percent of the overwintering broods had developed to new adults, which are not destroyed by the peeling method of control necessary at that season of the year. During this operation some 200 CCC man-days were used in treating 190 felled trees and 52 logs in the Twelve Mile area and 56 felled trees in Big Creek. Of the 190 trees treated in Twelve Mile, 18 were standing trees adjacent to the road slash.

On June 25th the writer, accompanied by Supervisor Abbott, inspected these two projects, which were under the direct supervision of Frank Foltz, Assistant Forester of the Cabinet National Forest. The insect attacks were more numerous and the resulting broods much heavier in the Twelve Mile Creek area than in Big Creek. Furthermore,

there was more evidence of a previous infestation in the former area than in the latter. The standing infested trees which were treated, as well as a few red-tops which could be seen scattered throughout the area, indicated the existence of a rather heavy normal infestation inthe Twelve Mile area prior to the creation of the road slash. The work in both areas had been thoroughly performed, and no infested material was recorded which had not been marked for treatment.

To determine the status of the 1935 infestation, Mr. Bedard made an extensive survey of these two areas during early October. The data secured from this survey show a relatively light infestation in the Big Creek drainage of .043 infested tree per acre, with a more serious situation in the Twelve Mile area of .5 tree per acre. The difference in the severity of the infestation within these two units was fairly well indicated by conditions encountered during the control operation.

Though the infestation in the Big Creek area can be disregarded for this season at least, the Twelve Mile situation is of a rather serious magnitude. A white pine infestation which averages .5 tree per acre is destroying a large percentage of the total volume each year. This is especially true for this area of mature timber where the stocking of white pine is not heavy. In addition to the number of trees infested, the attacks were recorded as being exceptionally heavy. No positive reason can be given in explanation of

this rather rapid change from a normal infestation to the epidemic condition which now exists, except that the road slash provided an abnormal supply of favorable host material which resulted in the change of conditions as indicated. Regardless of the cause or origin of the existing situation, an infestation exists which, if not checked, will in the opinion of the writer result in the destruction of a large percentage of the mature timber within this drainage during the next three or four years.

Though the existing infestation can be cared for through the institution of artificial control, the ultimate success of such an operation will depend almost entirely upon the amount of reinfestation which will originate from other untreated areas nearby. In considering the possibility of reinfestation from other areas, the type map available at this laboratory shows the Twelve Mile Creek unit to be unusually well isolated from other pine stands. There are some pine areas, other than the Big Creek unit, on the south side of the St. Regis River which could act as a source of reinfestation to the drainage in question. The status of the infestation within these areas should be determined before any definite action relative to control is made. However, from the unusual degree of isolation which is afforded the Twelve Mile Creek area it would seem that, if a thorough clean-up of the infestation is made, success should follow the institution of control.

In addition to the preservation of the merchantable and accessible timber stands, the execution of this project would be of pronounced experimental value. It is a small, accessible area which

would permit of a 100 percent clean-up, even though double spotting was necessary, allowing the effects of thorough control to be accurately measured, which does not seem to be possible with large projects, and it would also provide information relative to the degree of isolation required for successful control.

As the actual acreage of the infested area is not known, it is impossible to more than give an estimate of the total number of infested trees. As stated, Mr. Bedard's survey showed an average infestation of .5 tree per acre, which can be taken as an indication of the infestation within the area actually covered. However, it is not known if the infestation persists through the side drainages or if it is confined to the main stream. However, one can be very sure that there would be from 600 to 800 infested trees requiring treating.

In view of the timber values at stake, as well as the experimental data to be gained, it is recommended that this project be instituted and that all pine trees infested with the mountain pine beetle be located and treated as much before June 10th, 1936, as possible.

Respectfully submitted,

James C. Evenden
Entomologist

Forest Insect Laboratory
Coeur d'Alene, Idaho
Oct. 2, 1935

Refer to file
Project C-4

MEMORANDUM FOR MR. J. C. EVENDEN

Re: Mountain pine beetle infestation on Big and Twelve Mile Creeks, Cabinet National Forest.

As you have visited both of these areas and consequently know the timber, site, and topography, I shall merely state my findings in these two drainages. Twenty-three acres of strip were run in Big Creek, on which only one infested standing tree was found, making an infestation of .043 tree per acre. This, I believe, is a true picture of the infestation in this area, as a number of 1934 log decks were examined and found uninfested and views of the canyon walls showed no red-tops or fading trees.

Twelve Mile Creek appears to have harbored a considerable infestation during the past several years, judging from the numerous groups of old snags. Twenty-four acres of strip in this area showed an infestation of .5 tree per acre, comprising one group of 7 standing trees, 3 single windfalls, and 2 single standing trees. All infested trees in this area were heavily attacked and contained exceptionally numerous broods.

W. D. Bedard
Assistant Entomologist

File copy.

Forest Insect Laboratory
Coeur d'Alene, Idaho
July 2, 1935

MEMORANDUM FOR THE FOREST SUPERVISOR OF THE
CABINET NATIONAL FOREST, THOMPSON FALLS, MONTANA
Re: Examination of Mountain Pine Beetle Infestation in Road Slash Adjacent to Twelve Mile and Big Creek Forest Highways.

On June 25th, accompanied by Supervisor Abbott, the control work instituted against the mountain pine beetle in road slash along the Twelve Mile and Big Creek Forest Highways was examined. The work was progressing nicely, and a large percent of the infested trees in both drainages had already been peeled, burning being out of the question because of the late season. The infested logs contained very heavy broods of the mountain pine beetle, and in some instances considerable emergence had already occurred. However, a fairly large percent of the brood was still in the larval and pupal stage, against which the treatment will be effective. A few standing trees along the creek bottom of both drainages had been found to be infested, and had already been felled for treatment. In both drainages the forest canopy is very dense, and logs lying on the forest floor had remained in a moist condition suitable for mountain pine beetle attack in 1934, though they had been cut in 1933. Evidence of some 1933 attack was found, and it is rather apparent that the creation of this slash started an infestation in 1933 which in 1934 spread into the remaining host material suitable for attack, and in 1935 would have gone into standing trees. Just how effective this

year's control work is going to be is not known in the Twelve Mile Creek drainage. Considerable emergence had already occurred at the time of treatment, so one can be assured that there will be a number of standing trees infested during the present season which will require treatment during the coming winter. Already some new attacks had been located by the control organization, and the trees felled for peeling.

On the Big Creek drainage the broods were not so far advanced, and no emergence was recorded; however, one or two newly attacked trees had been located and felled for treatment, indicating that some emergence had occurred. In the Big Creek drainage a large number of logs resulting from the highway slash had been rolled into large decks. Mr. Foltz, who accompanied us on the examintion of this area, found that in the center of these decks there were one or two small spots of infestation on a few logs. I recommended against the opening up of these decks for the treatment of this small amount of infestation on the basis that, inasmuch as a certain amount of the existing infestation had been missed by the operation, this additional amount would not justify the cost of treatment. A number of the standing trees which had been felled for treatment were found to have 1934 attacks of the mountain pine beetle at the base--the lower 30 to 50 feet--with 1935 attacks of Ips vancouveri in the top. The difference between the two insects and their work was explained to Mr. Abbott and Mr. Foltz, as it is not necessary to peel that portion of trees harboring new Ips attacks.

On small spruce logs in the Twelve Mile drainage, attacks of the Engelmann spruce beetle (Dendroctonus engelmanni) were recorded. Though of course one can not be sure as to the future of these broods, this insect is seldom of primary importance in this region, and I doubt the necessity of peeling the infested logs; however, a safety-first policy might be adopted where heavy infestations are encountered.

Though it is of course regretted that this condition was not discovered earlier in the season so that the infested logs might have been treated while the insect was in a larval stage, it is believed that the work will aid materially in reducing the infestation which one may be reasonably sure will occur in these drainages during the coming summer. I would therefore recommend that all of the white pine type in both areas be covered by an adequate survey during the coming fall, and that all infested trees be felled and treated prior to June 1st, 1936.

This is a condition which I believe will be found to exist in other areas where newly constructed highways have penetrated white pine stands with the slash still remaining. This is especially true along creek bottoms, where the logs will remain in a condition favorable for insect attack for a much longer period than when they are exposed on dry hillsides or placed on skids. It is gratifying to note that regulations now exist relative to the disposal of white pine slash created during road construction.

I am enclosing two copies of a circular that was prepared for the Coeur d'Alene project this spring, which may be of interest to you. This office is anxious to be of every possible assistance to you, and will be glad to help in the training of spotters during the operation which I feel you should plan for the coming fall.

Respectfully submitted,

James C. Evenden
Entomologist

ec for Forest Supervisor, Cabinet NF
cc to:
Dr. Craighead (2)
Mr. Koch

Copy sent Foltz
Regional Forester.

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Insect Control
Cabinet

Thompson Falls, Mont.
June 21, 1935.

MEMORANDUM FOR FILES

On the morning of June 20 I met Frank Foltz on Twelve Mile Creek. Foltz brought in with him Roy Baker, CCC Foreman, and 25 CCC enrollees and we at once started work on the control of the Mountain Pine Beetle infestation on Twelve Mile Creek.

There were a few of the standing green trees which were affected but we found the big infestations in logs which were cut in the summer of 1933. We found some infestation of Douglas Fir logs and some in spruce logs, although most of it was in White Pine.

Foltz and I took samples of the beetles which we found in spruce, as well as a sample of the gallery work which is to be sent to Evenden for identification. I instructed Foltz to get bottles with either alcohol or formaldehyde from the Nursery so that he could take samples, and to be sure he kept track of the different bottles so that when they were sent in to Evenden we could, at the same time, advise Evenden of the kind of tree, the amount of these beetles, location found, etc.

As soon as we had the work well strung out, we left Baker in charge and went over to look at the job on Big Creek. Harmon Austin, Superintendent of the CCC Camp was on Big Creek with us. On Big Creek we examined at least 100 logs, which were cut and stacked on the right-of-way, and not less than 50 or more cut trees which had not been worked up into logs during the progress of the work. We only found two cases of bark beetles in the logs and cut trees, and these attacks were very small. We did find approximately a dozen standing trees which were affected by the beetles, but part of these beetles were evidently Western Pine Beetles. Samples were taken and will be forwarded to Evenden for identification.

It was quite noticeable that the standing trees affected were, in nearly every case, trees which were directly in front of a rock cut. Evidently when the blasting was done at the rock cuts, the trees were injured, partially barked by flying rock, which weakened the trees and made them especially susceptible to insect attacks. We tested a good many logs on Twelve Mile which were within the direct rays of the sun and found that in many of these cases, there was no insect work where the

sun had dried out the bark, and that on such trees and logs the insect work was confined to the shaded or moist portions. Foltz and I have a theory that one reason why there is less infestation on Big Creek than there is on Twelve Mile Creek is because the logs on Big Creek were decked, thus allowing ready access of air and giving the logs a good chance to dry out. The logs which are affected on Twelve Mile are pretty much in a bottom, undecked, where they were kept moist.

I instructed Foltz to keep track of everything that was out of the ordinary relative to this beetle attack so we could get as much information as possible, to take all the samples that were desirable, and to make personal checks on the result of the work, and instruct the Foreman to keep note of the number of logs and trees peeled for report.

This morning, in addition to the crew of 25 men working under Roy Baker, an additional crew of about 20 men working under Ralph Johnson will be put on the work. Johnson's crew will be kept on Twelve Mile. Baker's crew, for about a day, will be put on Big Creek. It is believed that they can clean up all of the work on Big Creek in a day. Foltz, before the crew moves up on Big Creek, will make a second trip up there, accompanied by one or two live CCC's,and spot all of the trees and logs which need peeling.

A. H. Abbott

Forest Supervisor.